

The Last Frontier

Rumbling volcanoes, lush rainforests, and majestic Andean peaks—Academy scientist Charles Griswold and graduate student Hannah Wood saw it all during a recent expedition to South America. A few months ago, the pair and a team of collaborators traveled throughout Chile in search of specimens from the country's temperate rainforest region. They had two goals: assess the biodiversity of insects and spiders in the rainforest canopy, and catch live assassin spiders for Wood's Ph.D. dissertation.

Very little is known about life in the forest canopy. Griswold calls it "the last biotic frontier, akin to the deepest part of the ocean." Like the deep sea, the forest canopy has remained a mystery

mostly because of its inaccessibility. One must either climb a tree, or stand in a crane or balloon. Movement is highly constrained using these approaches.

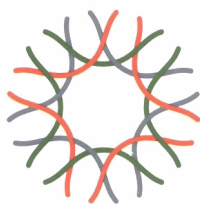
So Griswold and team tried a different approach: bringing the specimens down to the forest floor. First they laid nylon tarps on the ground. Then they cranked up a "fogger," a machine that resembles a leaf blower but blows smoke into the canopy. For about an hour, insects and spiders drifted down onto the tarps, where the scientists were waiting to collect them. Griswold estimates that a single tree yielded up to 100 different species of spiders. Considering the vast unexplored forest canopies in not just Chile but across the entire planet, the number of

species yet to be discovered is likely staggering.

During the second half of their expedition, Griswold and Wood focused on assassin spiders—members of the family Mecysmaucheniidae that are infamous for hunting and stabbing their prey rather than trapping them in webs. Every morning, the two scientists gathered leaf

litter and soil, spread it on a tarp, and waited for spiders to emerge. They caught more than 100 assassin spiders this way—practically equaling the number of South American specimens in all the world's collections. The next stop: New Zealand, the only other place in the world where members of this family live.

This assassin spider was photographed at 25X magnification.



CALIFORNIA
ACADEMY OF
SCIENCES

Golden Gate Park
55 Music Concourse Drive
San Francisco, CA 94118
415.379.8000
calacademy.org

Doors Open September 27, 2008

FALL 2008

from the California Academy of Science

Live



Welcome
to your new
Academy.
It's eye-opening!

Look Inside:

Opening weekend

Fall calendar of events

An architect's vision

Exhibit previews